Docket No.: HK-794

MAIL STOP: APPEAL BRIEF-PATENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

Applic. No.	:	10/767,577	Confirmation No.: 6185
Inventor	:	Uwe-Jens Krabbenhöft	
Filed	:	January 29, 2004	
Title	:	Method for Color Transformation by Way of Color Profiles	
TC/A.U.	:	2625	
Examiner	:	Jamares Washington	
Customer No.	:	24131	

Hon. Commissioner for Patents
Alexandria, VA 22313-1450

BRIEF ON APPEAL

S i r :

This is an appeal from the final rejection in the Office action dated June 22, 2007, finally rejecting claims 1-5.

Appellants submit this *Brief on Appeal* including payment in the amount of $510.00 to cover the fee for filing the *Brief on Appeal*.

Real Party in Interest:

This application is assigned to Heidelberger Druckmaschinen AG of Heidelberg, Germany. The assignment was recorded under Reel/Frame Nos. 014951/0016 on January 29, 2004.

Related Appeals and Interferences:

No related appeals or interference proceedings are currently pending which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

Status of Claims:

Claims 1-5 are rejected and are under appeal. No claims were cancelled.

Status of Amendments:

No claims were amended after the final Office action. *A response under 37 CFR § 1.116* was filed on August 21, 2007. The Primary Examiner stated in an *Advisory Action* dated September 5, 2007 that the request for reconsideration had been considered but did not place the application in condition for allowance.

Summary of the Claimed Subject Matter:

The subject matter of each independent claim is described in the specification of the instant application. Examples explaining the subject matter defined in each of the independent claims, referring to the specification by page and line numbers, and to the drawings, are given below.

Independent Claim 1

Claim 1 defines a method of transforming color values of a first device-dependent color space into color values of a second device-dependent color space, to effect a substantially identical visual impression of colors reproduced in the first and second color spaces.

Page, 22 lines 4-6 of the specification explains a step of providing a first color profile characterizing the first color space and providing a second color profile characterizing the second color space. Page, 22 lines 6-13 of the specification explains that the first and second color profiles specify an association between the color values of the first and second device-dependent color spaces and the color values of a device-independent color space. Page 3, lines 5-11 explains that the XYZ color space is a device-independent color space. Page 22, lines 13-17 of the specification explains that a white point of the first device-dependent color space, a white point of the second device-dependent color space, and a white point of the device-independent color space are described by device-independent white point values.

Page 22, lines 19-22 of the specification explains a step of determining relative color values of the device-independent color space from the color values of the first device-dependent color space by way of the association specified in the first color profile. Reference can also be made to step S1 in Fig. 2.

Page 22, line 22 through page 23, line 4 of the specification explains a step of converting the relative color values into absolute color values in a ratio

corresponding to a ratio of the values of the white point of the first device-dependent color space and the white point of the device-independent color space. Reference can also be made to step S2 in Fig. 2.

Page 23, lines 6-11 of the specification explains a step of determining chromatically adapted color values from the absolute color values by way of a chromatic adaptation transformation. Equation 10 on page 18 of the specification shows that the chromatic adaptation transformation includes converting the absolute color values into receptor signals L, M, S of color receptors by use of matrix multiplication. Reference can also be made to step S3 in Fig. 2.

Page, 23 lines 11-18 of the specification explains a step of converting the chromatically adapted color values into relative chromatically adapted color values in a ratio corresponding to a ratio of the values of the white point of the device-independent color space and the white point of the second device-dependent color space. Reference can also be made to step S4 in Fig. 2.

Page, 23 lines 19-22 of the of the specification explains a step of determining color values of the second device-dependent color space from the relative chromatically adapted color values by way of the association specified in the second color profile. Reference can also be made to step S5 in Fig. 2.

References Cited:

6,912,306 B1	Nakabayashi et al.	June 28, 2005

Kim Jin-Seo et al.: "Development of Color Management System Prototype", IEEE, 1998.

Grounds of Rejection to be Reviewed on Appeal

1. Whether or not claims 1-3 are anticipated by U.S. Patent No. 6,912,306 B1 to Nakabayashi et al. under 35 U.S.C. § 102(e).

2. Whether or not claims 4 and 5 are obvious over U.S. Patent No. 6,912,306 B1 to Nakabayashi et al. in view of Kim Jin-Seo et al.: "Development of Color Management System Prototype", IEEE, 1998 under 35 U.S.C. § 103.

Argument:

Claims 1-3 are not anticipated by U.S. Patent No. 6,912,306 B1 under 35 U.S.C. § 102(e)

Claim 1 includes a step of converting the relative color values into absolute color values in a ratio corresponding to a ratio of the values of the white point of the first device-dependent color space and the white point of the device-independent color space.

In other words, the conversion requires that the ratio between the relative color values and the absolute color values correspond to the ratio between the values of the white point of the first device-dependent color space and the white point of the device-independent color space.

Appellants believe that Nakabayashi et al. do not teach a conversion process satisfying the claimed correspondence between the ratios.

Appellants also believe that Nakabayashi et al. do not teach a conversion process utilizing white points. A white point is a set of tristimulus values (X, Y, Z) or chromaticity coordinates (x, y) that define the color white. Appellants believe it is clear that Nakabayashi et al. teach a conversion process that merely utilizes a luminance value Y of a white point. A luminance value Y alone cannot define a white point.

On page 4 last paragraph through page 5, line 2 of the Office action dated June 22, 2007, the Examiner has referred to column 6, line 24, column 6, line 60 through column 7, line 19, and to equations 1-1 and 1-2 as well as Fig. 4 of Nakabayashi et al. for support of the allegation that the claimed conversion step is taught.

The portions of Nakabayashi et al. cited by the Examiner describe a contrast correction procedure that is performed by the input-side observation environment changing circuit 22. As equation 1-1 shows, the contrast correction procedure involves first adding an offset value to the XYZ value and then normalizing the result of the addition with Y'_{MW} so that the resulting Y' value may acquire a maximum value of one. Column 6, lines 65-67 describe the normalization. Equation 1-2 shows the normalizing term: $Y'_{MW} = Y_{MW}$ (the absolute luminance of the white point of the medium) + R_{bk} (the reflectance of the screen) * Y_{PRD} (the

luminance value of the ambient light). The entire contrast correction procedure can be seen by referring to column 6, line 60 through column 7, line 18.

First, appellants assert that the contrast correction procedure does not even utilize a white point. The normalizing term Y'_{MW} does not represent a white point, but rather is a luminance value.

Second, even if Y'_{MW} were considered to be a white point rather than a luminance value, appellants assert that the contrast correction procedure does not satisfy the claimed ratio of white points. The XYZ value is merely normalized with the luminance value Y'_{MW}. During the contrast correction procedure, the XYZ value is not converted in a ratio corresponding to a ratio of the values of the white point of the first device-dependent color space and the white point of the device-independent color space as required by claim 1.

In the Advisory Action dated September 5, 2007, the Examiner referenced column 12, lines 22-26 to support maintaining the rejection.

At column 12, lines 22-26, Nakabayashi et al. do state that the black-adaptation correction is carried out by using the XYZ value of the darkest point on the medium (i.e., the XYZ value of the black point) and the XYZ value of the most luminous point on the medium (i.e., the XYZ value of the white point).

The meaning of the teaching referenced by the Examiner can be ascertained by referring to the paragraph at column 13, lines 7-30. Thereat, Nakabayashi et al.

make the following two statements. More specifically, the device optimal color space is defined as illustrated by the following equation (2-5). That is, the XYZ value ($X_{S,K}$ $Y_{S,K}$ $Z_{S,K}$) of the black point, which has been subjected to the black-adaptation correction, is combined with the XYZ value (X=Y=Z=1) for the adaptation white point and is thereby defined as an exponential function.

It is believed that those statements simply refer to the numerator terms in equations 2-5, where this so-called white point simply appears as the numeral one (1). There is no teaching related to a ratio of white points.

Appellants assert that there is no teaching of a step of converting the relative color values into absolute color values in a ratio corresponding to a ratio of the values of the white point of the first device-dependent color space and the white point of the device-independent color space.

Claim 1 also includes a step of converting the chromatically adapted color values into relative chromatically adapted color values in a ratio corresponding to a ratio of the values of the white point of the device-independent color space and the white point of the second device-dependent color space.

Appellants assert that equations 2-7, 2-8, and 2-10, which are respectively used in the image editing circuit 23, the output side observation environment changing circuit 24 and the output-side converter 25, do not include the step of claim 1 referenced immediately above.

Appellants believe it should be clear that claim 1 is not anticipated by Nakabayashi et al.

Claims 4 and 5 are not obvious over U.S. Patent No. 6,912,306 B1 in view of Kim Jin-Seo et al.: "Development of Color Management System Prototype", IEEE, 1998 under 35 U.S.C. § 103

Claims 4 and 5 depend from claim 1 and are therefore not obvious for the reasons given above with regard to the teaching of U.S. Patent No. 6,912,306 B1 and the limitations in claim 1. For the purposes of this appeal, claims 4 and 5 are not separately argued.

The honorable Board is therefore respectfully urged to reverse the final rejection of the Primary Examiner.

If an extension of time is required for this submission, petition for extension is herewith made. Any fees due should be charged to Deposit Account No. 12-1099 of Lerner Greenberg Stemer LLP.

Respectfully submitted,

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MPW/bb

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Claims Appendix:

1. A method of transforming color values of a first device-dependent color space into color values of a second device-dependent color space, to effect a substantially identical visual impression of colors reproduced in the first and second color spaces, the method which comprises:

providing a first color profile characterizing the first color space and providing a second color profile characterizing the second color space;

wherein the first and second color profiles specify an association between the color values of the first and second device-dependent color spaces and the color values of a device-independent color space;

wherein a white point of the first device-dependent color space, a white point of the second device-dependent color space, and a white point of the device-independent color space are described by device-independent white point values;

determining relative color values of the device-independent color space from the color values of the first device-dependent color space by way of the association specified in the first color profile;

converting the relative color values into absolute color values in a ratio corresponding to a ratio of the values of the white point of the first device-dependent color space and the white point of the device-independent color space;

determining chromatically adapted color values from the absolute color values by way of a chromatic adaptation transformation, the chromatic adaptation transformation includes converting the absolute color values into receptor signals L, M, S of color receptors by use of matrix multiplication;

converting the chromatically adapted color values into relative chromatically adapted color values in a ratio corresponding to a ratio of the values of the white point of the device-independent color space and the white point of the second device-dependent color space; and

determining color values of the second device-dependent color space from the relative chromatically adapted color values by way of the association specified in the second color profile.

2. The method according to claim 1, which comprises carrying out the chromatic adaptation transformation by way of a Bradford matrix (B), with:

$$B = \begin{pmatrix} 0.8951 & 0.2664 & -0.1614 \\ -0.7502 & 1.7135 & 0.0367 \\ 0.0389 & -0.0685 & 1.0296 \end{pmatrix}.$$

3. The method according to claim 1, which comprises carrying out the chromatic adaptation transformation in accordance with a von Kries matrix.

4. The method according to claim 1, which comprises using color profiles formatted in accordance with the ICC specification (International Color Consortium).

5. The method according to claim 1, which comprises leaving unchanged the associations contained in the color profiles between the color values of the device-dependent color space and the color values of the device-independent color space.

Evidence Appendix:

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or any other evidence has been entered by the Examiner and relied upon by appellant in the appeal.

Related Proceedings Appendix:

No prior or pending appeals, interferences or judicial proceedings are in existence which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal. Accordingly, no copies of decisions rendered by a court or the Board are available.